CLAIMS

What is claimed is:

1. A method of performing network communications, comprising:

receiving a datagram for transmitting information over a network;

selecting a layer in a network protocol stack to establish communication over the network using an inner layer application programming interface (IL API);

establishing an inner layer socket at the selected network layer using the IL API without accessing other layers in the layered network protocol stack; and

transmitting the datagram packet over the selected layer using the inner layer socket.

2. The method of claim 1, wherein said datagram includes header information associated with a transport layer for communication over a transport socket.

3. The method of claim 2, wherein the network protocol stack is compatible with TCP/IP and the transport socket uses a TCP or UDP transport layer protocol.

4. The method of claim 1, wherein said datagram includes header information associated with a network layer for communication over a network socket.

5. The method of claim 4, wherein the network protocol is compatible with TCP/IP and the network socket uses the IP network layer protocol.

6. The method of claim 1, wherein said datagram includes header information associated with a link layer for communication over a link socket.

7. The method of claim 6, wherein the network protocol is compatible with TCP/IP and the link socket uses a link layer protocol.

8. The method of claim 1, wherein selecting a layer in a network protocol stack further includes determining if the information produced at a layer in the network protocol stack corresponds to the information being transmitted through the datagram.

9. The method of claim 1, wherein the IL API provides a transport socket to access transport layer information in the network protocol, a network socket to access

network layer information in the network protocol, and a link socket to access link layer information in the network protocol.

10. The method of claim 1, wherein the IL API provides a different socket communication interface for each layer of communication available in the network protocol.

11. The method of claim 1, wherein an application communicates with the IL API using object –oriented instructions and the IL API interfaces with the network protocol through instructions executable on a virtual-machine compatible with the network protocol stack.

12. The method of claim 11, wherein the object-oriented instructions are compatible with the Java programming language.

13. An apparatus for performing network communication, comprising:

a processor;

a memory for storing instructions when executed on the processor that causes the processor to,

receiving a datagram for transmitting information over a network;

selecting a layer in a network protocol stack to establish communication over the network using an inner layer application programming interface (IL API);

establishing an inner layer socket at the selected network layer using the IL API without accessing other layers in the layered network protocol stack; and

transmitting the datagram packet over the selected layer using the inner layer socket.

14. The apparatus of claim 13, wherein said datagram includes header information associated with a transport layer for communication over a transport socket.

15. The apparatus of claim 14, wherein the network protocol stack is compatible with TCP/IP and the transport socket uses either TCP or UDP transport layer protocol.

16. The apparatus of claim 13, wherein said datagram includes header information associated with a network layer for communication over a network socket.

17. The apparatus of claim 16, wherein the network protocol is compatible with TCP/IP and the network socket uses an IP network layer protocol.

18. The apparatus of claim 13, wherein said datagram includes header information associated with a link layer for communication over a link socket.

19. The apparatus of claim 18, wherein the network protocol is compatible with TCP/IP and the link socket uses a link layer protocol.

20. The apparatus of claim 13, wherein instructions that select a layer in a network protocol stack further include instructions that determine if the information produced at a particular layer in the network protocol stack corresponds to the desired information available through the network protocol.

21. The apparatus of claim 13, wherein instructions in the IL API provides a transport socket to access transport layer information in the network protocol, a network socket to access network layer information in the network protocol, and a link socket to access link layer information in the network protocol.

22. The apparatus of claim 13, wherein instructions in the IL API provides a different socket communication interface for each layer of communication available in the network protocol.

23. The apparatus of claim 13, further including instructions in an application that communicate with the IL API using object –oriented instructions and wherein the IL API interfaces with the network protocol through instructions executable on a virtual-machine compatible with the network protocol stack.

24. The apparatus of claim 23, wherein the object-oriented instructions are compatible with the Java programming language.

25. An apparatus for performing network communication, comprising:

means for receiving a datagram for transmitting information over a network;

means for selecting a layer in a network protocol stack to establish communication over the network using an inner layer application programming interface (IL API);

means for establishing an inner layer socket at the selected network layer using the IL API without accessing other layers in the layered network protocol stack; and

means for transmitting the datagram packet over the selected layer using the inner layer socket.

26. A computer program, tangibly stored on a computer-readable medium, comprising instructions for performing network communication when executed on a processor, by:

receiving a datagram for transmitting information over a network;

selecting a layer in a network protocol stack to establish communication over the network using an inner layer application programming interface (IL API);

establishing an inner layer socket at the selected network layer using the IL API without accessing other layers in the layered network protocol stack; and

transmitting the datagram packet over the selected layer using the inner layer socket.